

REMARKS

Applicant has studied the Office Action dated May 15, 2008. Claims 41-77 and 79 are pending. Claim 76 has been amended and claim 78 has been canceled without prejudice. Claims 41, 64 and 76 are independent claims. No new matter has been added as the amendments have support in the specification as originally filed.

It is submitted that the application, as amended, is in condition for allowance. Reconsideration and reexamination are respectfully requested.

§ 103 Rejections

Claims 76-79 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Knutson et al. ("Knutson" U.S. Patent No. 6,788,710) in view of Limberg (U.S. Patent No. 6,201,564). This rejection is respectfully traversed.

It is respectfully noted that the Federal Circuit has provided that an Examiner must establish a case of prima facie obviousness. Otherwise the rejection is incorrect and must be overturned. As the court recently stated in In re Rijkaert, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993):

"In rejecting claims under 35 U.S.C. § 103, the examiner bears the initial burden of presenting a prima facie case of obviousness. Only if that burden is met, does the burden of coming forward with evidence or argument shift to the applicant. 'A prima facie case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art.' If the examiner fails to establish a prima facie case, the rejection is improper and will be overturned." (citations omitted.)

With this paper, claim 78 has been canceled without prejudice. It is, therefore, respectfully submitted that the rejection is moot with respect to claim 78 and it is respectfully requested that the rejection be withdrawn.

It is respectfully noted that the present invention is directed to periodically inserting predefined sequences into supplemental data in order to enhance ghost cancellation performance regardless of the length of the supplemental data. See page 14, line 21 to page 15, line 18 and FIG. 5 of present application as originally filed.

It is respectfully noted that independent claim 76 has been amended with this paper to better disclose the present invention to recite pre-processing original robust data before multiplexing with the normal data by coding the original robust data for first forward error correction (FEC), interleaving the FEC-coded robust data and periodically inserting predefined sequences into the interleaved robust data and then performing channel equalization on the robust data in the data frame using the predefined sequences in order to enhance ghost cancellation performance of the robust data. It is respectfully submitted that Knutson fails to teach these limitations.

It is respectfully submitted that Knutson merely teaches simple padding that is not analogous to the periodic insertion of predefined sequences, as recited in independent claim 76. It is respectfully noted that Knutson clearly discusses that "no null packets are generated" if "the auxiliary data is longer than one packet" and to "pad the remaining bits with null data" if "the auxiliary data is shorter than one packet." See Knutson at c.6, ll. 35-45.

It is respectfully submitted that the disclosure at c.6, ll. 35-45 of Knutson is not periodic null data insertion as there is nothing periodic about the basis for padding in Knutson. On the other hand, according to the invention recited in claim 76, the predefined sequences are periodically inserted regardless of the length of the robust data.

It is respectfully submitted that Knutson also fails to teach pre-processing original robust data before multiplexing with the normal data recited in claim 76. It is respectfully noted that the pre-processing recited in independent claim 76 includes coding the original robust data for first FEC, interleaving the FEC-coded robust data, and periodically inserting predefined sequences into the interleaved robust data, all performed before the robust data is multiplexed with normal data (MPEG video/audio), as shown in FIG. 2 of the present application. However, it is further respectfully noted that FIG. 4 and FIG. 8 of Knutson fail to teach the FEC coding, interleaving, and periodic insertion of predefined sequences before multiplexing with normal data, but rather merely teach simple padding with null data based on the length of auxiliary data before multiplexing with the recorded data packets.

It is respectfully noted the Examiner, at paragraph 4 on page 3 of the Office Action, indicates that Knutson fails to disclose "performing channel equalization on the robust data in the data frame using the predefined sequences in order to enhance ghost cancellation performance of the robust data." It is further respectfully noted the Examiner asserts that Limberg teaches this limitation by disclosing "operating the channel equalizer in a receiver for DTV signals comprising performing channel equalization on the channel data in the data frame based on ghost cancellation performance of the channel data" and specifically cites "FIG. 2, S3" and "FIG. 5, S32-S34." It is respectfully submitted that, although Limberg arguably discloses the use of ghost cancellation performance of the channel data for channel equalization, it clearly fails to teach the use of predefined sequences that are inserted periodically.

It is respectfully noted that FIG. 5 of Limberg is a "flow chart of the known routine used in step S3 of equalizing channel response in the FIG. 2 or FIG. 4 method." See Limberg at c. 12, ll. 46-48.

It is respectfully noted that in step S31, a training signal is extracted from a data-field-synchronization (DFS) signal generated by the complex demodulation step S1 illustrated in FIG. 2 or 4, and in step S32, the training signal is accumulated to generate a ghost-cancellation reference (GCR) signal, with a discrete Fourier transform (DFT) of the GCR signal calculated in step S33. See Limberg at c. 12, ll. 48-64.

It is respectfully noted that the transmission channel is characterized by its DFT in step S34 and the channel equalization filtering coefficients are finally calculated from the transmission channel DFT terms. See Limberg at c. 12, line 64 to c. 13, line 5.

It is respectfully submitted that FIG. 5 of Limberg illustrates using a ghost-cancellation reference (GCR) signal for channel equalization, not using "predefined sequences" which are inserted periodically during DTV data transmission, as illustrated in FIG. 5 of the present application as originally filed and recited in independent claim 76. Therefore, it is further respectfully submitted that Limberg fails to cure the deficiency of Knutson with regard to performing channel equalization on the robust data in the data frame using the predefined sequences in order to enhance ghost cancellation performance of the robust data, as recited in independent claim 76. It is further respectfully submitted that Limberg also fails to cure the deficiency of Knutson

with regard to pre-processing original robust data before multiplexing with the normal data by coding the original robust data for first forward error correction (FEC), interleaving the FEC-coded robust data and periodically inserting predefined sequences into the interleaved robust data.

It is respectfully asserted that independent claim 76 is allowable over the cited combination references. It is further respectfully asserted that claims 77 and 79 also are allowable over the cited combination references at least by virtue of their dependence from allowable claim 76.

Allowable Subject Matter

Applicant graciously acknowledges the Examiner's allowance of claims 41-75 and the indication that the application would be in condition for allowance if the rejected claims were canceled. Since it is believed that the rejection of the claims has been overcome, it is respectfully submitted that the application is in condition for allowance.

CONCLUSION

In view of the above remarks, Applicant submits that claims 41-77 and 79 of the present application are in condition for allowance. Reexamination and reconsideration of the application, as originally filed, are requested.

No amendment made was related to the statutory requirements of patentability unless expressly stated herein; and no amendment made was for the purpose of narrowing the scope of any claim, unless Applicant has argued herein that such amendment was made to distinguish over a particular reference or combination of references.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (213) 623-2221 to discuss the steps necessary for placing the application in condition for allowance.

LEE, HONG, DEGERMAN, KANG & WAIMEY

Date: November 14, 2008

By: Richard C. Salfelder/
Richard C. Salfelder
Registration No. 51,127
Attorney for Applicant(s)

Customer No. 035884